What is claimed is:

1   1. A memory in a computer storing a data structure for access by one or more programs

2   executing on said computer, said data structure suitable for usage-based licensing of resources, said

3   data structure comprising:

4   a resource list having one or more resource entries, each of which comprises data

5   declaring the existence of a particular resource or a group of two or more resources offered for

6   usage-based licensing;

7   a pointer in each resource entry pointing to a distillation program which, when

8   executed, converts raw usage data for the corresponding resource by a particular customer into

9   one or more items of metric data summarizing at least one aspect of usage of said resource by

10   said customer;

11   an organization data entry representing a vendor organization that supplies said

12   resources for licensing and which created said resource list, said organization data entry

13   including a pointer to said resource list and including a pointer to a provisioning list;

14   at least one provisioning list data entry containing one or more provisioning item data

15   entrys, each said provisioning item data entry comprising data defining licensing terms for a

16   particular resource or a group of two or more resources offered as a package and containing a

17   pointer to one or more resource entrys for which said provisioning item represents licensing

18   terms;

19   an authorization node data entry corresponding to a license which has been granted

20   under a particular provisioning item data entry, each authorization node data entry containing a

21   pointer to the provisioning item data entry which records the license terms said authorization

22   node data entry represents;

23   at least one user and/or distribution organization data entry defining a user and/or

24   distribution organization, and containing a pointer to at least one authorization node data entry;

25   at least one resource authorization node data entry corresponding to each

26   authorization node data entry and corresponding to a single resource, and having a pointer to

27   said corresponding authorization node data entry and either storing raw usage data of said

28   corresponding single resource by a particular user and/or distribution organization or containing a

29   pointer to a buffer where said raw usage data by said particular user and/or distribution

30   organization is stored;

31   a distillation program functioning to convert raw usage data for a particular resource

32   to metric data which summarizes at least one aspect of use of said resource, each distillation

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33   program linked to a particular resource entry by a pointer in said data structure; and

34   a metrics entry corresponding to each resource used by a particular customer, each

35   metrics entry for storing one or more metrics which summarize at least one aspect of use of the

36   particular resource to which said metrics entry corresponds, each said metric generated by said

37   distillation program linked to said resource to which said metrics entry correspond.

1   2. The memory of claim 1 wherein said user and/or distribution organization data entry in said

2   data structure further contains a pointer to a provisioning item data entry or a provisioning list

3   data entry which stores the terms of a license under which said user and/or distribution

4   organization data entry has rights to use and/or distribute one or more resources pointed to by

5   said provisioning item or provisioning list.

1   3. The memory of claim 1 further storing a mapping program linked to a particular one of said

2   provisioning items and a central service unit entry storing central service unit data, said mapping

3   program authored by a user and/or distribution organization and functioning to convert metrics stored

4   in a metrics entry into different units of measure called central service units each of which can

5   represent usage encoded in one or more metrics, and storing said central service units in a central

6   service unit entry in said data structure.

1   4. A memory for a computer for storing data that defines a data structure accessible by a

2   program executing on a server used for usage based licensing of resources, said data structure

3   comprising:

4   - one or more data objects representing a vendor organization;

5   - one or more data objects representing resource lists which each contain one or

6   more data objects representing resources or suites of resources supplied for usage-based

7   licensing by a vendor organization, each of said resource list data objects being linked by pointer

8   data to data object(s) representing the vendor organization that supplies the resources

9   represented by data objects on said resource list;

10   - a distillation program for every resource represented by a data object forming part

11   of a resource list data object, each said distillation program being capable of reading raw usage

12   data for the resource and converting that raw usage data to metrics representing use of that

13   resource;

14   - a pointer in each data object representing a resource which points to a distillation

15   program for use in converting usage data for said resource into metric data;

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16   - at least one data object representing a provisioning item for each resource, each

17   said provisioning item data object storing data memorializing the operative terms of a licensing

18   agreement which is available for purchase to licensees and/or distributors of a vendor

19   organization which defined the provisioning item, each said provisioning item data object linked

20   by a pointer to the data object representing the vendor organization which defined the

21   provisioning item and further linked to the data object representing the resource or suite of

22   resources to which said provisioning item pertains;

23   - one or more data objects representing sub-organizations declared by one or more

24   of said vendors, each of said sub-organization having a licensee and/or distributors relationship

25   with a vendor organization and each of which has a pointer pointing to a provisioning item which

26   records the terms of the license to said sub-organization;

27   - zero or more data objects representing a sub-organization provisioning item for

28   each resource licensed by a distributor type sub-organization, each said sub-organization

29   provisioning item data object storing data memorializing the operative terms of a licensing

30   agreement which is available for purchase to licensees and/or distributors of said sub-

31   organization which defined the provisioning item, each said sub-organization provisioning item

32   data object linked by a pointer to the data object representing the sub-organization which defined

33   the provisioning item and further linked to the data object representing the resource or suite of

34   resources to which said provisioning item pertains;

35   - zero or more data objects representing sub-sub-organizations declared by one or

36   more of said sub-organizations, each said sub-sub-organization having a licensee and/or vendor

37   relationship to the sub-organization that declared said sub-sub-organization, each said data

38   object representing a sub-sub-organization being linked to the data object representing the sub-

39   organization that declared the existence of said sub-sub-organization and a pointer to at least one

40   sub-organization provisioning item under which said sub-sub-organization has a license;

41   - zero or more data objects representing a sub-sub-organization provisioning item for

42   each resource made available for sub-licensing by a distributor type sub-sub-organization, each

43   said sub-sub-organization provisioning item data object storing data memorializing the operative

44   terms of a licensing agreement which is available for purchase to licensees and/or distributors of

45   said sub-sub-organization which defined the sub-sub-organization provisioning item, each said

46   sub-sub-organization provisioning item data object linked by a pointer to the data object

47   representing the sub-sub-organization which defined the provisioning item and further linked to

48   the data object representing the resource or suite of resources to which said provisioning item

49   pertains;

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50   - zero or more data objects representing sub-sub-sub-organizations declared by one

51 or more sub-sub-organizations, each said data object representing a sub-sub-sub organization

52 representing an entity which has a licensee and/or distributor relationship to the sub-sub

53 organization which declared the existence of said sub-sub-sub organization and linked to the data

54 object representing the sub-sub-organization which declared the existence of said sub-sub-sub

55 organization and further linked to said sub-sub-organization provisioning item that records the

56 terms of the license of said sub-sub-sub organization, and so on for other data objects

57 representing other organizations having licensee and/or distributor relationships with any other

58 organization represented by a data object in said data structure to any level of compexity;

59   - zero or more authorization node data entries each of which represents a license

60 taken by an organization represented by a data entry in said data structure, each said

61 authorization node data entry linked by a pointer to the data entry representing the organization

62 which took said license, and linked by a pointer to one or more of said provisioning item data

63 entries which records the terms of the license represented by said authorization node;

64   -for every authorization node data entry, one or more resource authorization node

65 data entries, one for each resource licensed under the license represented by said authorization

66 node data entry, and each of which is linked by a pointer to the authorization node data entry

67 representing the license under which use of said resource is authorized, and each of which either

68 stores usage data for the corresponding resource or points to a usage data buffer elsewhere

69 which stores said usage data.

1 5. A memory in a computer storing a data structure modelling a distribution system for the

2 sale of resources, said data structure comprising:

3   a resource list having one or more resource entries, each of which comprises data

4 declaring the existence of a particular resource or a group of two or more resources offered for

5 sale;

6   a pointer in each resource entry pointing to a distillation program which, when

7 executed, converts raw sales data for the corresponding resource by a particular buyer into one

8 or more items of metric data summarizing at least one aspect of purchases of said resource by

9 said customer;

10   an organization data entry representing a vendor organization that supplies said

11 resources for sale and which created said resource list, said organization data entry including a

12 pointer to said resource list and including a pointer to a provisioning list;

13   at least one provisioning list data entry containing one or more provisioning item data

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14   entrys, each said provisioning item data entry comprising data defining terms of sale for a

15   particular resource or a group of two or more resources offered for sale as a package and

16   containing a pointer to one or more resource entrys for which said provisioning item represents

17   licensing terms;

18   an authorization node data entry corresponding to a sale which has been

19   consumated under a particular provisioning item data entry, each authorization node data entry

20   containing a pointer to the provisioning item data entry which records the terms of sale said

21   authorization node data entry represents;

22   at least one purchaser and/or distribution organization data entry defining a

23   purchaser and/or distribution organization, and containing a pointer to at least one authorization

24   node data entry;

25   at least one resource authorization node data entry corresponding to each

26   authorization node data entry and corresponding to a single resource, and having a pointer to

27   said corresponding authorization node data entry and either storing raw purchase data of said

28   corresponding single resource by a particular purchaser and/or distribution organization or

29   containing a pointer to a buffer where said raw purchase data by said particular user and/or

30   distribution organization is stored;

31   a distillation program functioning to convert raw usage data for a particular resource

32   to metric data which summarizes at least one aspect of the purchase of said resource, each

33   distillation program linked to a particular resource entry by a pointer in said data structure; and

34   a metrics entry corresponding to each resource purchased by a particular customer,

35   each metrics entry for storing one or more metrics which summarize at least one aspect of

36   purchase of the particular resource to which said metrics entry corresponds, each said metric

37   generated by said distillation program linked to said resource to which said metrics entry

38   corresponds.

1   6. A memory for storing data defining a data structure accessible by a program stored on a

2   server, said data structure comprising:

3   1) data entries that define vendors or resources and the resources that are available

4   for usage-based licensing;

5   2) one or more data entries which define the terms of each available licensing deal in

6   addition to data that allows each available license deal to be connected to the entity that offers it

7   and the resources licensed under the deal;

8   3) zero or more data entries that define licensee or distributor entities which have

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9   taken a license under one or more license deals and data that allows these data entries to be

10   connected to the particular terms of the license deal or deals the entity has the right to accept and

11   the resources which may be licensed under each available license deal and the licensor which

12   offers each license deal;

13   4) an authorization node data entry that represents every license deal that has been

14   accepted and data that connects that entry to said licensor or distributor entity that took the

15   license and the data entries that represent the terms of the license and the licensor entity such as

16   a vendor entity or distributor entity; and

17   5) data entries comprising usage data for each particular licensed resource

18   memorializing use by each entity that has used the resource and data that can be used to

19   connect said usage data to the data entries that represent the license deal under which the usage

20   was made; and further comprising

21   at least one distillation program stored in said memory for every resource available

22   for licensing which is coupled by pointer data to the resource to which said distillation program

23   pertains, said distillation program for controlling said server to take the usage data for a licensed

24   resource which has been used and convert said usage data to metric data.

1   7. The memory of claim 6 wherein at least some of said at least one distillation program are

2   programmable spreadsheets which are programmed with formulas which certain user with access

3   privileges can alter.

1   8. The memory of claim 6 further comprising stored data which defined a mapping program

2   capable of controlling said server to access metric data and convert said metric data to central

3   service unit data.

1   9. A server apparatus having data stored therein or in a disk array coupled to said server

2   which is accessible by one or more programs on said server and which defines a data structure, said

3   data structure comprising:

4   a resource list having one or more resource entries, each of which comprises data

5   declaring the existence of a particular resource or a group of two or more resources offered

6   for usage-based licensing;

7   a pointer in each resource entry pointing to a distillation program which, when

8   executed, converts raw usage data for the corresponding resource by a particular customer

9   into one or more items of metric data summarizing at least one aspect of usage of said

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10   resource by said customer;

11   an organization data entry representing a vendor organization that supplies said

12   resources for licensing and which created said resource list, said organization data entry

13   including a pointer to said resource list and including a pointer to a provisioning list;

14   at least one provisioning list data entry containing one or more provisioning item data

15   entrys, each said provisioning item data entry comprising data defining licensing terms for a

16   particular resource or a group of two or more resources offered as a package and containing

17   a pointer to one or more resource entrys for which said provisioning item represents licensing

18   terms;

19   an authorization node data entry corresponding to a license which has been granted

20   under a particular provisioning item data entry, each authorization node data entry containing

21   a pointer to the provisioning item data entry which records the license terms said

22   authorization node data entry represents;

23   at least one user and/or distribution organization data entry defining a user and/or

24   distribution organization, and containing a pointer to at least one authorization node data

25   entry;

26   at least one resource authorization node data entry corresponding to each

27   authorization node data entry and corresponding to a single resource, and having a pointer to

28   said corresponding authorization node data entry and either storing raw usage data of said

29   corresponding single resource by a particular user and/or distribution organization or

30   containing a pointer to a buffer where said raw usage data by said particular user and/or

31   distribution organization is stored;

32   a distillation program functioning to convert raw usage data for a particular resource

33   to metric data which summarizes at least one aspect of use of said resource, each distillation

34   program linked to a particular resource entry by a pointer in said data structure; and

35   a metrics entry corresponding to each resource used by a particular customer, each

36   metrics entry for storing one or more metrics which summarize at least one aspect of use of

37   the particular resource to which said metrics entry corresponds, each said metric generated

38   by said distillation program linked to said resource to which said metrics entry corresponds.

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